

User Guidelines of the Biocenter Imaging Facility (BIF)

location:
UNI-building 304,
Zülpicher Str. 47a+b

March/2024

BIF ACCESS

The Biocenter Imaging Facility is accessible to all research groups from the Cologne Biocenter and any other research institutes of the University of Cologne. Biocenter groups are privileged in terms of booking and price rates. The Imaging Facility offers well maintained electron microscopes, light microscopes, highly qualified staff and a very good working environment. Services include, but are not limited to: microscope training, consultations during booking, advice on microscopy techniques and sample preparation, software use, data handling & storage.

Access to the Biocenter building is managed by the facility manager. The Imaging Facility provides the necessary paperwork and helps with the process to obtain access to the building. To login at the workstations a university account is necessary. The Imaging Facility assists users and guest researchers to obtain a guest account from the RRZK (Regionales Rechenzentrum Köln).

An initial training is mandatory before access to the Imaging Facility resources is granted.

BIF INCLUDES :

In room R-1.M08 with 4 separate microscope boxes: 2 TCS SP8 confocal microscopes (Leica), 1 THUNDER Imager (Leica), 1 SMZ18 Stereo Microscope (Nikon),

In room R 1.209: 1 BX61 fluorescence microscope (Olympus); in room 1 ApoTome fluorescence Microscope (Zeiss)

In room R-1.37a: 1 Leica work station with Leica analysis software, incl. Lightning, 2 Fujitsu workstations, both for image analysis (with Software: Amira 4.1), special data tablet (WACOM).

In room R-1.37 (specimen preparation laboratory): DiscoveryV8 stereo dissecting fluorescence microscope (Zeiss), Axiovert 40CFL inverted microscope (Zeiss), microbiological safety cabinet class II, chemical hood, 2 gas bottle cupboard G90 (Düpperthal), refrigerator and freezer (Liebherr), Heated cabinet and CO₂ -incubator (Binder), centrifuge 5702RH (Eppendorf)

In room R-1.601: 1 SEM

In room R-1.612: 1 TEM

In room R-1.613: 1 specimen preparation laboratory for SEM and TEM, use upon special request

Confocal microscope TCS SP8-1 (Leica), operator Dr. Matthias Gruhn

Confocal microscope TCS SP8-2 (Leica), THUNDER Imager (Leica) and SMZ18 Stereo Microscope (Nikon) operator Dr. Parisa Kakanj (CEPLAS)

Fluorescence microscope BX61 (Olympus), operator Sima Seyed-Nejadi, BTA
ESEM scanning microscope Quanta FEG 250 (FEI) and TEM transmission microscope Tecnai G2 Spirit BioTWIN (FEI), operator Dr. Frank Nitsche

1 BIF STAFF & CONTACTS

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2 COSTS & BILLING

The BIF charges for 5€/hr usage time of the available confocal microscopes. Resource booking is charged in 1 hour intervals for all equipment. Current prices for TEM are available upon request. Fee changes will be announced at least 3 months in advance. Booking times are recorded with an online-booking system and PI's are billed annually.

These fees are used to maintain equipment, pay for consumables and software updates to provide best working conditions.

The use of facility infrastructure can be financed by funding agencies (e.g. DFG) and the Imaging Facility can assist with necessary details.

3 GENERAL RULES AND USER RESPONSIBILITIES

Users are obliged to handle equipment according to the instructions given during training. Workspace should be clean when left, and data should be removed regularly from workstations according to the instructions. The preparation room R-1.37 of the Imaging Facility is currently designed for work with GMOs classified S1.

The PI is responsible for the behavior of the user and the S1 safety features of the particular experiments. All users require an initial safety briefing on GMO work given by the PI or a

person authorized in writing which is repeated annually. The PI is also responsible for the GMO records (kept in the PI's group and available upon request) and the classification of the experiments in safety level S1. The Imaging Facility provides the necessary technical training and equipment maintenance only.

One of the microscopes in the Imaging Facility (Leica SP8) is equipped with a class 3 laser system. This requires that we adhere to German legislation regarding their safe use. Mandatory measures include yearly user training. Users have the responsibility to perform a laser safety training at least once a year to work in the Imaging Facility. This laser safety training is offered by the Imaging Facility.

The Imaging Facility can be used at any time. All registered users are provided with an access key to the facility, but users are responsible for following safety rules applicable to the particular experiments, and for assuring that help can be called in case of emergency.

The user has the responsibility to ensure that the employer's liability insurance covers the work in the Imaging Facility.

RESOURCE BOOKING GUIDELINES

An online booking calendar is used to create, modify and delete reservations of Imaging Facility resources.

(<http://imaging-facility.biozentrum-ze.uni-koeln.de/reservation/roschedule.php>)

After training, a user obtains access to the respective resources in this calendar. User data (name, email, work phone, PI) are stored in the booking system and secured with a personal user login. The booking software is used to record booked time and calculate bills.

BOOKING CHANGES

Reservations in the booking calendar are mandatory prior to the usage of Imaging Facility resources. In case a user repeatedly uses equipment without prior booking, the PI will be informed about this behavior and facility access will be revoked.

Reservations can be canceled prior to the start of a reservation; however, we ask users to be considerate with these short-term cancellations which should only be used as an exception. In case this booking freedom is abused, we reserve the right to restrict possible cancellations of individual users.

Only Imaging Facility staff can change times during, or after, an active reservation. However, if the duration of an experiment changes (e.g. work done prior to the end of a reservation), we will change the reservation duration (30 minute intervals).

In case of technical issues or required maintenance work, resources will be blocked by Imaging Facility staff as early as possible and users with conflicting reservations will be notified.

BOOKING PRIORITIES

Most cases of conflicting reservations should be directly handled between respective users; the Imaging Facility can help mediate these discussions. If this is not possible or no solution is found, following rules apply:

1. Biocenter users have priority access
2. Resource access to meet publication deadlines (e.g. revision dates) are prioritized
3. Worst case, a commission consisting of the Imaging Facility Head and two project-independent Biocenter investigators will determine which user will be given priority access. This commission will be determined for each case and decides as quickly as possible.

MICROSCOPE USAGE GUIDELINES

Training is mandatory prior to microscope usage; this training is microscope-specific. After this initial training, a user can independently book and use the microscopes he has been trained on. For the first few sessions, we recommend to work together with the instructor in case further assistance is necessary.

At any time during microscope usage, users are free to ask Imaging Facility staff for assistance. If continuous assistance is necessary or experiments require more support by the Imaging Facility, possible collaborations should be discussed.

Furthermore, general rules apply (see above). Work instructions can be found at each microscope workstation.

DATA HANDLING AND STORAGE GUIDELINES

During microscope usage, data are usually stored on local workstations. Each workstation has a dedicated data storage partition; data stored on the system partition (C:\) will be deleted without further notice. After data acquisition, users have to transfer their data off these workstations within a week (4 weeks for data analysis workstations). Old data will be deleted without further notice to ensure that other users can use the microscope workstations without any problems.

For Biocenter users and other members of the University of Cologne, we recommend transferring their data via network to a data storage managed by the RRZK. Although we prefer not to transfer data using USB connected devices, users have this option as well. An exception are data acquired on the SEM. These can only be transferred via USB port managed by the operator.

If a user generates >200 GB per week or session, we recommend to discuss individual solutions for efficient data handling, transfer and storage.

4 RULES FOR CITATION AND CO-AUTHORSHIP

The German Science Foundation (DFG) evaluates the impact and importance of core facilities to the cluster/institute/university based on their number of acknowledgments, citations and co-authorships. To ensure that the Imaging Facility can continue to provide the best service possible, maintain staff and acquire new equipment and software, users have to adhere to the following guidelines.

ACKNOWLEDGMENTS

As soon as data were acquired or analyzed within the Imaging Facility or by Imaging Facility staff, the role of the facility has to be cited within the acknowledgments. This includes publications, talks, as well as Bachelor, Master and PhD theses. Also, please let us know whenever you acknowledge the Biocenter Imaging facility!

Example:

We thank the Biocenter Imaging Facility (and STAFF MEMBER) for their support (in microscopy / technique / data analysis).

CO-AUTHORSHIP

Core facilities have to bill for their services to keep the equipment in excellent condition, pay for software updates and consumables to obtain an optimal working environment for their users. Despite these fees, common rules for co-authorship also apply to Imaging Facility staff members (substantial intellectual or experimental contributions). Prior to a substantial contribution, the user has to inform the PI; the Imaging Facility further strongly suggests that

a meeting between everyone involved (user, PI, Imaging Facility staff and head) should be held.